

Oldyp. H. W.

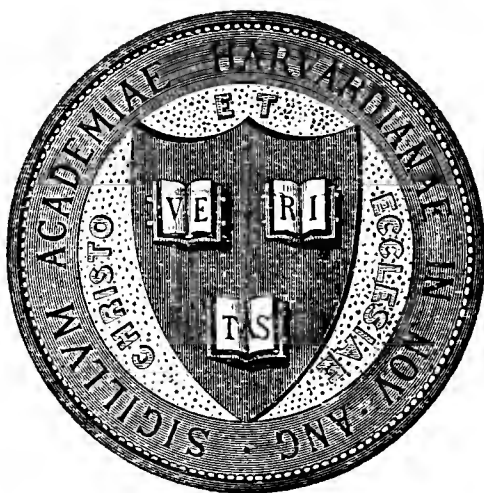
Bird and human music.

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PARALLEL GROWTH OF BIRD AND
HUMAN MUSIC.

BY
HENRY W. OLDYS.

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THE ECONOMY OF JANE STEBBINS.

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herself to meet any of the indignant village matrons, she certainly did not expect to be again confronted by Mrs. Jessop's bulky form.

"I've been a-thinking I spoke a bit sharp just now," that lady remarked, almost apologetically, "but I do hate to see a woman make a fool of herself; it seems more against natur', some'ow, than fur a man."

It was not a very promising beginning, but Miss Stebbins appeared to be mollified. Perhaps she realized what an effort at graciousness it meant on the part of the carpenter's wife. "It don't seem fitting," Mrs. Jessop went on, "that such a one as Tobias Ling, that's a poor creature, say what you will, should come atwixt you an' me, what ha' known one another these forty years and more. Why, I was just a-calling to mind that when we first played wi' dolls together, you couldn't ha' been older than my little Peggy, and not so unlike neither, being fair and nice-looking enough. It's surprising how folks do change."

"Come in," said Miss Stebbins, gently. Every one knew that little Peggy Jessop, the only girl after a long line of much-slapped brothers, had found a warm place in her mother's heart.

As they got inside, the conversation came to an abrupt end, for Miss Stebbins was seized with a recurrence of breathlessness. She was accustomed to these attacks, but this was worse than usual, owing, no doubt, to the excitement of the moment.

"The drops," she said, faintly, "in the other room." Then she remembered herself, but Mrs. Jessop had already started to fetch them.

There came a sudden astonished exclamation from the bed-room as Mrs. Jessop found herself in the midst of the soft white sea of fine linen. She brought back the drops without comment, however, only from her seat at the other side of the room she eyed her friend from time to time curiously.

"I suppose you think I'm fair doited?" Miss Stebbins asked at last, defiantly.

"They must ha' taken a powerful long time i' the making," Mrs. Jessop replied.

Suddenly, to her surprise, Miss Stebbins began to cry. "They were all I seemed to have to live for," she said, weakly.

"Eh, but what put it into your head to start 'em?" Mrs. Jessop enquired. Her tone was curious, but not unkind.

"It was when you were wed," Miss Stebbins sobbed, with a sudden burst of long-pent confidence, "and you were fair pushed to get your things done i' the time. So I thought it 'ud be as well to be forrard, never dreaming but that I'd be marrying soon. Besides, I was glad enough of a bit o' needle-work in my hand, for mother had died the winter afore, and father was mostly out at night. Then, one day, some un told me of a grand wedding, and they spoke of the bride's trousseau, as they called it, and how she'd had two dozen of every mortal thing, and that's what I set before me; not that I ever thought to reach it, but it was something to work for like. But when I came to doing them, it seemed to grow on me, for each thing had to be finer than the last, and that's why I learnt to make the lace.

"I know you held me to be close, but it was this I was always saving for, penny by penny, till I didn't seem to think of aught else. Why, I didn't have time for lovers nor courting, nor miss 'em either, when such things passed out o' my life. But then last spring, when it was done, all done, it seemed to ha' all gone to waste."

Mrs. Jessop got up. She moved with ponderous care across the room to where Miss Stebbins sat. "Thirty year," she murmured, under her breath. Perhaps she was thinking of her row of stalwart sons and her rosy little Peggy. Her face looked strangely gentle.

"Well, we won't say no more about Tobias. I dessay 'ee aren't worse nor another," she said. "And, as you say, it would ha' been an awful waste."

She laid her hand for a moment on Miss Stebbins's shoulder, and then hurried off, as if ashamed of the unaccustomed caress. Miss Stebbins rose too; it was to contemplate the beauty of the fulfilled trousseau.

Bird and Human Music.
By H. W. Olds.

Parallel Growth of Bird and Human Music

BY HENRY W. OLDYS

Biological Survey, United States Department of Agriculture

BIRD music presents a fascinating field for exploration. What seems to the careless glance only a mass of unrelated tones becomes under the more intense gaze of the student a coherent and systematic structure. The gradual development from simple cries and ejaculations of the remote past to the elaborate combinations of different notes that the present offers to the ear has not moved in a chance direction, but has been under the guidance of a law that apparently shapes its course towards a fixed ideal.

Such general laws are never perfectly uniform in their operation, or we should miss that variety which makes nature so attractive. Hence it is not surprising that we find in some quarters development of mere vocalism paramount. Birds often have beautiful voices and great skill in using them whose songs show little appreciation of musical form. The mocking-bird and canary are striking examples of this class. On the other hand, many birds, such as the wood-thrush and chewink, with perhaps smaller compass and less brilliant execution, must be ranked higher when judged by the composition of their songs.

It will doubtless occur to the critical reader that it is incorrect to judge bird music by the standard by which human music is tested. The student of the philosophy of music, in particular, will feel satisfied that from the apparently fortuitous manner in which we have acquired our present musical standard the development of bird music must necessarily be moving in another direction and along different lines. But however cogent the grounds for this belief may seem, investigation shows that *there is striking*

evidence that the evolution of bird music has paralleled the evolution of human music, and that both are tending toward the same ideal.

The history of human melody discloses that the pleasing features of songs which appeal to the æsthetic taste of civilized man have been gradual accretions during the progress of music from its starting-point. Rhythm, or the metrical division of musical utterances; tones of fixed pitch, which, passing through various stages, have become limited to those that constitute our present scale—seven in the diatonic and twelve in the chromatic; the sense of modern tonality—the constant mental reference throughout a melody to a tonic, or key-note,—all these have developed at different stages of progress. Other æsthetic rules have also become established, prominent among which is that of repetition. Repetition of single notes, of single phrases (on the same or a different pitch), and of combinations of phrases, all have their pleasurable effect.

Now if we find many of these features characterizing bird music, or any part of it, remembering that the modern complex structure of bird songs has grown from a very simple beginning, and that this evolution is unquestionably independent of our own, we shall have good reason to believe that the development of bird music has been along lines similar to those on which human music has developed. If it can be shown that various species of birds use the intervals of our modern scale, and utter their notes in such sequence as to produce melodies that are pleasing to our ears (which test them by the rules by which human melodies are

tested), the conclusion seems strong that bird music and human music have much closer relationship than has heretofore been suspected.

It has been denied and affirmed frequently that the birds use the intervals of our melodic scale. Most writers that hold to the negative are inclined to except one or two birds, such as the European cuckoo, which, they usually state, sings a true third. If this were the only case noted, it would still go far to support the idea of a relationship between the development of human and avian music; but to the cuckoo must be added various other birds. The Carolina wren, song-sparrow, field-sparrow, chickadee, wood-thrush, chewink, wood-pewee, tufted titmouse, blue-gray gnat-catcher, and robin are a random few of those that, occasionally at least, use the intervals of our scale. I do not mean by this to assert that their notes never vary by a shade from the exact tones of which our scale is scientifically constructed—that tried, for example, by a resonator such as is used to test overtones they would be found to correspond identically in number of vibrations with the notes of the true scale; but I do mean to say that their tones are usually so close to the tones of our scale as to satisfy the ordinary requirements of a musical ear. They are quite as true as those generally uttered by human throats. Hence it may be stated with confidence that in their choice of intervals such birds as I have mentioned are often governed by the requirements of our modern scale.

As I write, the song of a song-sparrow enters the window beside which I sit at work, the first part of which consists of a perfect fifth repeated thrice:



The sense of rhythm, like the use of diatonic intervals, is variously developed among birds. Perhaps the Carolina wren is the strictest timist that I have listened to, though one chewink song showed an almost absurd attention to time. It was uttered with an emphasis on each

beat so marked as to convey the fanciful impression that the singer was a most unwilling performer:



It has been my custom latterly, where it is possible, to give the metronome number with each notation that I make in the field (which is, of course, not feasible unless the song can be divided into regular beats), and very few notations made within the past three or four years are without this indication of appreciation of time on the part of the singer.

The use of repetition among birds is very common with some species; and whether it be in the repetition of a single note, with which the song-sparrow frequently begins its song, as in the following example:



or in the repetition of a phrase, as in one from a tufted titmouse:



or in a few selected from the many and varied utterances of the Carolina wren:



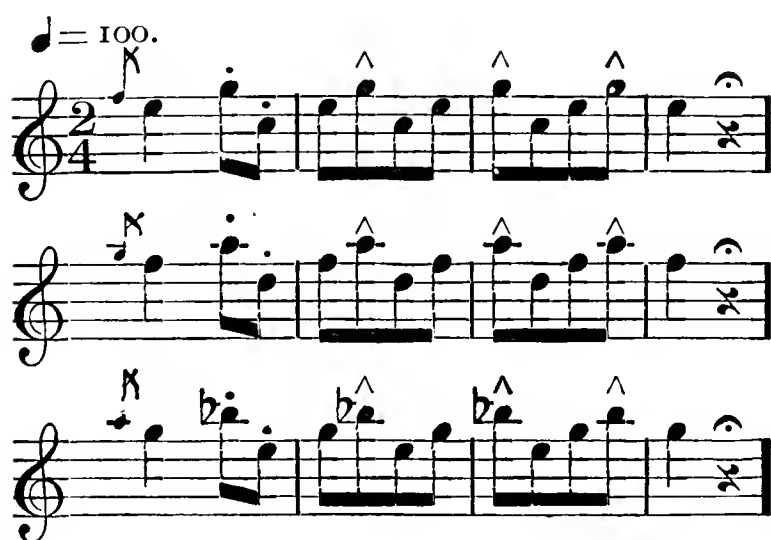
or many other repetitions of single notes or phrases, which could just as readily

be adduced for illustration were it necessary, we find the same evidence that the birds, like ourselves, are apparently pleased by these rhythmic recurrences.

Repetition of the same phrase on another pitch is an effect commonly used by human composers. Examples may be found in the old English song "Down among the Dead Men," Grieg's "Arabische Tanz," Pinsuti's "Duschinka," and many other compositions for voice or instrument. I have noted two instances of this effect in bird music—this beautiful example from a wood-thrush:



and this remarkable and melodious utterance of a blue-gray gnatcatcher, a bird whose ordinary songs have little of the coherent or rhythmical in their structure:



(It should be explained that the phrases of the gnatcatcher were not rendered in the sequence here shown, but that each was given indiscriminately on one of the three different degrees of pitch indicated, never, however, moving more than one tone up or down from the last uttered.

The wood-thrush is justly praised as one of our most charming singers. This estimate is no doubt largely owing to the beautiful quality of its tones, but a reference to the example of wood-thrush music just given will show that in some part at least it is due to the beauty of the melodic arrangement of notes. I have, too, among my notations a sprightly bit of melody from a song-sparrow

that would do credit to a composer endowed with human heart and brain and sympathy:



More attractive still, from the standpoint of sentiment, was the following combination of two phrases uttered by a particularly accomplished chewink:



It regularly alternated these phrases, leaving a pause between sufficient to effectively disconnect them, yet not so great as to destroy the proper sequence.

I cannot refrain from quoting, as a further example, a little field-sparrow theme which, simple though it be, has a charming grace when it steals over a meadow on which lingers the last trace of golden light from the setting sun:



I know of no sound in nature more completely harmonious with the serenity of a summer evening than this simple vesper hymn of the field-sparrow.

Effective combinations are frequently produced by separate birds singing antiphonal phrases. Simeon Pease Cheney gives an example of this form of responsive singing taken from chickadees.* I have heard Carolina chickadees thus combining their songs, and have noted other examples of antiphonal music in the singing of field-sparrows, song-sparrows, meadow-larks, and chewinks. A few are given here and on the next page:

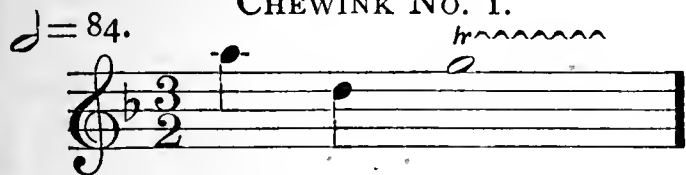


* *Wood Notes Wild*, p. 28, 1891.

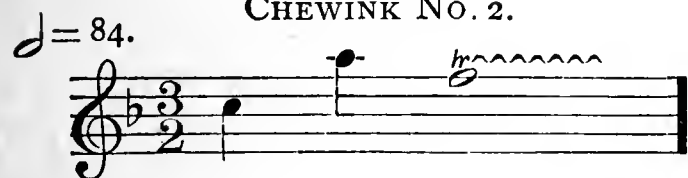
FIELD-SPARROW No. 2.



CHEWINK No. 1.



CHEWINK No. 2.



MEADOW-LARK No. 1.



MEADOW-LARK No. 2.



A noteworthy incident was connected with the duet of the meadow-larks. After they had sung responsively as here shown for a while, both began singing slightly out of tune, and in a short time, by gradual degrees, they had exchanged parts, so that No. 1 sang the phrase originally sung by No. 2, while No. 2 sang that originally uttered by No. 1. This was a musical feat that human singers would doubtless find it difficult to imitate. I have also heard a musical answer to the bit of melody just now quoted from the song-sparrow:



and although this could hardly be said to be antiphonal singing, as I heard it, since the answering phrase was sung a year later than the original phrase, and at a point forty miles distant, yet I am strongly inclined to believe that the

second phrase originated as a direct response to the first. The same may be said of an example from the chewink:



The second phrase was separated from the first by a year of time, although it was delivered in the same locality. Both may have been given by the same bird, the later being merely a variation of the earlier; but in view of the antiphonal practice among certain species, including the chewink, it is also possible that the later form was originally derived from the other as a direct answer. In these instances of antiphonal singing the second phrase is not merely an *answer* to the first; it is a *musical answer*. It seems probable that the birds derive æsthetic enjoyment from such singing, much the same as we should ourselves obtain from it.

But the most remarkable instance of appreciation of form in music that I have noted comes from the wood-pewee, a bird whose structural development is not sufficiently advanced to bring its possessor within the class technically known as singing birds. Analysis of the ballad form in human music shows that repetition plays an important part, and that the few phrases that are required to build up a song have a certain symmetrical arrangement. There is, in the simplest form, a first theme, an answering theme ending with a note that leaves the musical satisfaction suspended, a repetition of the first theme, and a repetition of the second theme (exactly or in general character), ending with a satisfying note, the key-note. The notation of "Home, Sweet Home" at the top of the next page will serve to illustrate both the systematic arrangement of themes and the meagreness of material used.

Many of our hymn tunes follow this form, either exactly or approximately.

Now the wood-pewee, with no other material than those few plaintive, dis-



connected phrases that haunt the mid-summer woods, has constructed on this same plan a set devotional piece for its morning and evening orisons, which I have often heard it sing over and over in strict time, as though there were so many verses that had to be rendered before it could utter the final amen:



Here, it will be observed, all the requirements mentioned above are fulfilled. The first and third phrases are identical; the second and fourth similar in character, the second leaving the musical satisfaction suspended, the fourth appropriately finishing the verse. Different birds vary the construction of this song, but every rendition I have heard contains more or less of the adherence to form here displayed, and contrasts strikingly with the character of the usual utterances of the bird.

I have also heard an individual wood-thrush utter a triple-phrased song that, while not showing the strict conventionality of that of the wood-pewee, yet exhibited a certain degree of formality in its construction:



This combination of musically related phrases was repeated many times without variation or addition.

In the very formal wood-pewee composition there is apparently a distinct appreciation of modern tonality. But I scarcely feel warranted yet in crediting

any of the birds with a complete understanding of the nature of this æsthetic requirement. In the variations I have mentioned the wood-pewee frequently substitutes the second of the scale for the tonic as a closing note, and in songs of other birds I have not been able to perceive with certainty any preference for a definite key-note. Omitting the question of tonality, as yet doubtful, we find in bird music use of the intervals of our scale, appreciation of regular rhythm, repetition of single notes and phrases, the latter on the same or a different pitch, antiphonal effects, and finally a combination of themes in set form.

Now in view of these numerous and certainly remarkable instances of conformity to the æsthetic rules that govern our music, an explanation based on coincidence seems scarcely tenable. Yet, on the other hand, if we credit the birds with intelligent performances, we can hardly escape the idea that in the evolution of their music they are closely paralleling our advance. And when we consider the comparatively recent date at which we have developed some of the formal rules of melodic structure with which their most advanced musicians seem to be familiar—rules that are not yet appreciated by a large proportion of humanity—we can but feel that we have hitherto scarcely accorded these humble minstrels of wood and field their due. Perhaps we have not given sufficient significance to the fact that man and bird are the only creatures that use separate notes of determinate pitch in their music. Perhaps, too, we have missed the importance of the fact that the birds alone of the entire animal kingdom are capable of being taught to reproduce human melodies. But if the principle here tentatively suggested should prove unimpeachable—and I am well aware how greatly it conflicts with the conclusions of many leading investigators of evolution—we must accord a tardy recognition to the musical rank of our fellow-musician of the tree-top.

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